

MISCELLANEOUS.

On the Formation of the Stomata in the Epidermis of the Leaves of the Spiderwort (Tradescantia virginica), and on the Evolution of the Cells in their neighbourhood. By Dr. GARREAU.

WHEN a fragment, taken from the outer axillary portion of a very young leaf of the common Spiderwort, is examined by the microscope, it presents quadrilateral cells, the cavities of which are partially occupied by a smooth nucleus which has not yet become filamentous. Amongst these cells, at tolerably regular distances, others are seen possessing the same transverse diameter, but only half the size in the direction of the axis of the leaf; the proteic matter contained in them is less united, more granular, and of a more amber-like tint than that of the preceding cells. These new cells give origin to the two semilunar cells of the stomate, and this metamorphosis commences by the separation into two little masses of the azotized matter which they contain. Between these masses the outline of a double diaphragm is first observed; this separates the cell into two chambers, and soon splits and separates to form the stomatic orifice, a change which takes place concurrently with a partial resorption exercised by the new cells upon the parent cell.

Before this metamorphosis takes place, the parent cell corresponds at its two extremities with two cells, of which the nuclei are supported upon the portion of the cell-wall which touches these extremities. These nuclei, which are at first simple, soon emit filaments which run to a certain distance, near the centre of the cell, where they form a little mass of their constituent matter, a second nucleus. Scarcely has this change taken place, than the oldest nucleus, which is contiguous to the lateral wall of the parent cell, liquefies the portion of the wall of the cell which encloses it, and appears as if it would penetrate into the parent cell of the stomate, of which it then touches the wall. This liquefaction soon stops, and the semifluid matter is seen to surround itself with a pellucid membrane which constitutes the nascent cell. This cell at this period, is lodged partially in a notch of the wall of that from which it has arisen; but in consequence of the growth of both these cells, this notch becomes effaced, and only appears like a slight curve. The cell which has lost a portion of its wall does not appear to be perforated, but it is probable that at the point where the dissolution was effected, there is nothing but a simple wall belonging to the new cell.

The two cells situated above and below the stomate are originally square; they afterwards become elongated, and the nucleus which occupies the centre of each of them emits proteic processes, which run towards the wall of the cell contiguous to the acute extremities of the stomatic cells, and accumulate their proper substance at this point; this substance soon envelopes itself in a very thin membrane, so as to constitute a distinct cell, but still contained within the former, which appears from that time to be divided into two by a simple septum. This new cell, which at first is much broader than

long, soon elongates until it acquires a nearly square form, which it retains.

This mode of multiplication appears interesting, as it seems to show the solvent action exerted by proteic substances upon cellulose membrane and the part which they play in its regeneration, phenomena which, as may be seen, are not without analogy with those observable during the evolution of spores, pollen, &c. Another fact worthy of remark is, that in these formations the generation of the cells extends to all those contiguous to the parent cell of the stomate.—*Comptes Rendus*, 17th April, 1854, p. 744.

Description of a new Genus of Bivalve Mollusca.

By H. and A. ADAMS.

GENUS MYRINA, H. and A. Adams.

Shell transverse, oblong, subequilateral; valves closed, covered with a horny epidermis, pearly within; beaks subcentral. Hinge edentulous, ligament internal, linear; muscular impressions far apart, pallial impression simple. Byssiferous.

A single species, for which we propose the name *M. Denhami*, was discovered by the Officers of H.M.S. Herald, attached to floating masses of blubber.

On the Dimorphism of the Uredineæ. By M. TULASNE.

Since numerous observations have placed it beyond a doubt that a vast number of *Fungi* possess reproductive bodies of several kinds, there is in the history of the *Uredineæ* a fact, which, I think, admits of a more satisfactory interpretation than it has hitherto received. I refer to the simultaneous presence or succession in the same sori of two sorts of fruits (spores), which are attributed to different species. Some mycologists see in this nothing but a cohabitation, which, although frequent, is by no means necessary; others suppose a compulsory relation between the two *Uredines*,—that of a parasite with its host. If the latter opinion prevailed, instead of four or five *Phragmidia* and a few *Pucciniæ*, which would be parasitic upon various *Uredines*, as is usually believed, we should have, as I have convinced myself, a multitude of other *Pucciniæ*, the *Uromyces*, the *Pilulariæ*, the *Triphragmia*, the *Coleosporia*, the *Melampsora*, the *Cronartia*, and no doubt many other *Uredineæ* which I have not yet been able to study sufficiently. Thus the *Uredineæ* would not only live, as is really the case, as parasites upon the vascular plants, but they would also offer among themselves an example of parasitism quite unknown in the history of organized bodies, as about a third of their species would be charged with the nourishment of another third. This parasitism would also present a very unprecedented character, for it would prevail between plants almost identical with each other, or at all events united by the closest affinities, whilst, even amongst the simplest beings, there are generally well-characterized organic differences between the parasite and its host. The parasitic life attributed to the *Phragmidia*, the *Pucciniæ*, the *Cronartia*, and other *Uredineæ*, in relation to the *Uredines* proper, is therefore à